

ABSTRACT

Disclosed are couplings for use in devices positioned in a molten metal bath. One is a rigid coupling that may include a counterweight, the coupling to reduce nonconcentric movements during rotation of a shaft, particularly a rotor shaft. Another coupling uses magnetic force, rather than a direct physical connection, to form a driving connection between a drive shaft (such as a motor drive shaft) and a driven shaft (such as a rotor shaft). In the event the rotor is jammed, the increased torque creates an overload that disconnects the drive shaft from the driven shaft in order to help prevent damage to the rotor, driven shaft, drive shaft and other components. Also disclosed is a coupling to transfer gas into a shaft, the coupling having a non-threaded internal surface to help prevent gas leakage and thus assist in preventing any resulting damage to the coupling and shaft.